Name: _____   Date: _____

# Intervals, Transformations, and Slope Solution (version 171)

1. The function f is graphed below.
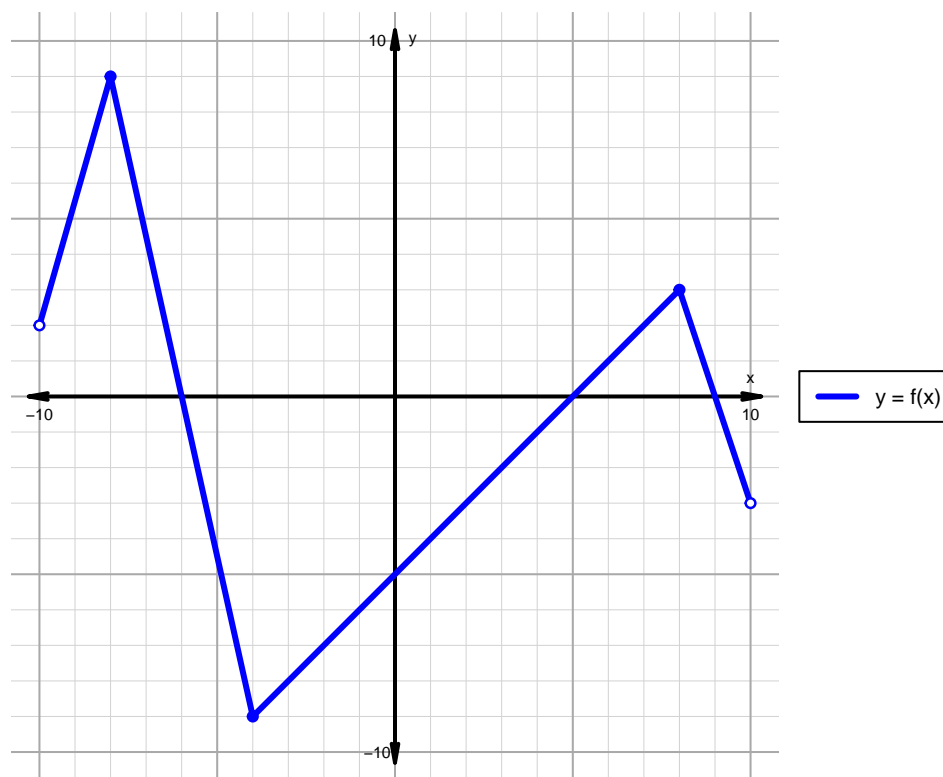
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-10, -6) \cup (5, 9)$
Negative	$(-6, 5) \cup (9, 10)$
Increasing	$(-10, -8) \cup (-4, 8)$
Decreasing	$(-8, -4) \cup (8, 10)$
Domain	$(-10, 10)$
Range	$(-9, 9)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = f(x - 2)$

$y = f(2 \cdot x)$

$y = f(x) + 2$

$y = 2 \cdot f(x)$
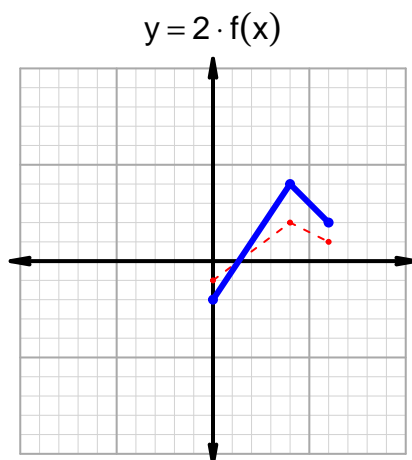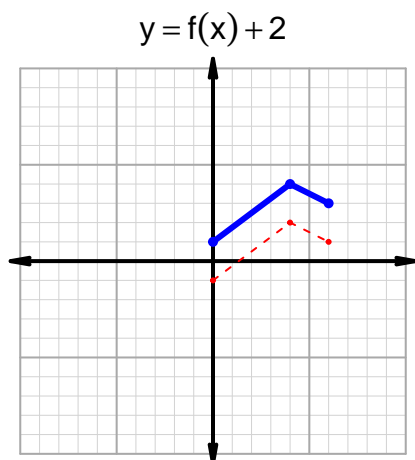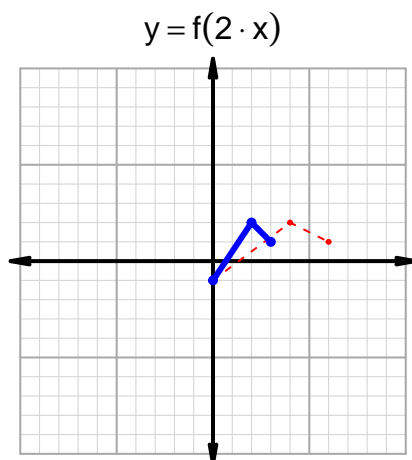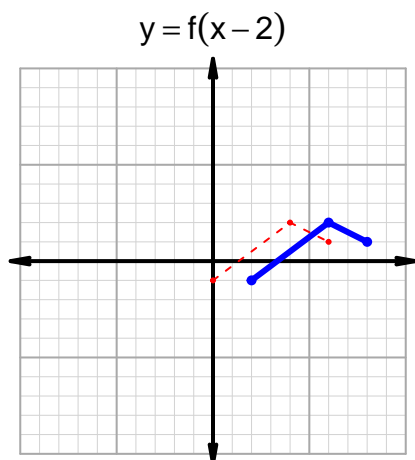
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 29$ and $x_2 = 56$. Express your answer as a reduced fraction.

x	$g(x)$
2	29
26	56
29	26
56	2

$\frac{g(56) - g(29)}{56 - 29} = \frac{2 - 26}{56 - 29} = \frac{-24}{27}$

The greatest common factor of -24 and 27 is 3. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-8}{9}$$